

## **Boundary element analysis for metal-clad plasmon resonators**

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Recently, extraordinary transmission through subwavelength apertures in metal films is attracting attention.<sup>1)</sup> In particular, the effect of shape and size of apertures is of great interest. We are investigating the optical properties of an infinite slit in a Drude material film by use of the boundary element method. This method is chosen, since this is more convenient to model small structures, compared with FDTD method. When a TM-polarized light is incident on the slit, dips in addition to peaks appear in the transmission spectra. These are due to the Fabry-Perot resonance of the propagation mode of a metal-clad waveguide<sup>2)</sup> by the reflection at the entrance and the exit surfaces. The existence of the dips by the resonance is a unique feature for Drude materials. For a perfect conductor, all resonances yield transmission peaks.<sup>3)</sup>

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